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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,915	02/17/2005	Tsuyoshi Kubota	90606.6	8404
54071 7590 10/30/2007 YAMAHA HATSUDOKI KABUSHIKI KAISHA C/O KEATING & BENNETT, LLP 8180 GREENSBORO DRIVE SUITE 850 MCLEAN, VA 22102			EXAMINER ZHU, WEIPING	
			ART UNIT 1793	PAPER NUMBER
			NOTIFICATION DATE 10/30/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JKEATING@KBIPLAW.COM  
uspto@kbiplaw.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/500,915	<b>Applicant(s)</b> KUBOTA ET AL.	
	<b>Examiner</b> Weiping Zhu	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 11-41 is/are pending in the application.
- 4a) Of the above claim(s) 27-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/8/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Status of Claims*

1. Claims 11-26 are currently under examination. Applicant's election without traverse of Invention I, Claims 11-26 in the reply filed on September 19, 2007 is acknowledged.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fetouh (US 4,569,109).

With respect to claims 11 and 16-21, Fetouh ('109) discloses a breaking and splitting structure of a connecting rod comprising a large end having a crank pin bore, the large end being broken and split into a main body section and a cap section such that the two sections having broken and split surfaces and the two sections being secured together by bolts; wherein breaking stating notches (i.e. grooves as claimed in the instant claim 16) extending in the axial direction of the crank pin bore being formed in an inside circumferential surface of the crank pin bore of the large end (abstract and Figures 1-6).

Fetouh ('109) does not specify the lengths of the notches as claimed in the instant claims 1 and 19-21; the shapes of the notches as claimed in the instant claims

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17 and 18. However, it is well held that discovering an optimum value of a result-effective variable involves only routine skill in the art. In re Boesch, 617, F.2d 272, 205 USPQ 215 (CCPA 1980). In the instant case, the length and the shape of the notches are result-effective variables, because they would directly affect the degree of the bending deformation during the fracture and the additional machining required after the separation as disclosed by Fetouh ('109) (col. 2, lines 15-36). Therefore, it would have been obvious to one skilled in the art to have optimized the length and the shape of the notches of Fetouh ('109) in order to minimize the deformation and the additional machining. See MPEP 2144.05 II.

With respect to claims 12-15, Fetouh ('109) discloses hardening the surface of the material of the connecting rod to embrittle the material sufficiently along the split planes to avoid excessive yielding when fractured (col. 4, lines 5-15).

With respect to claim 22, Fetouh ('109) discloses two bolt holes as claimed and that the two ends of the notch extend across the line connecting the axes of the bolt holes and extending in a direction substantially perpendicular to the axis of the crank hole as claimed (col. 3, lines 30-37 and Fig. 1).

With respect to claim 23, Fetouh ('109) discloses (col. 3, lines 49-57 and Fig. 1) the notches are formed at the inner edges of the mating ends, along the split planes (i.e. the notches are formed along the intersection where the split surfaces and the inside circumferential surface of the crank pin bore meet), which reads on the claim limitation.

With respect to claim 24, Fetouh ('109) does not limit the position of the bolt hole relative to the inside circumferential surface and outside wall of the crank pin bore as

claimed in the instant claim 24. It would have been obvious to one of ordinary skill in the art at the time the invention was made to position the bolt hole in any appropriate location between the inside circumferential surface and outside wall of the crank pin bore with expected success, because Fetouh ('109) discloses that the bolt hole can be located anywhere between the inside circumferential surface and outside wall of the crank pin bore as long as it is feasible to bolt the cap section and the body section of the connecting rod of Fetouh ('109) properly (col. 3, lines 30-37 and Fig. 1).

With respect to claim 25, Fetouh ('109) discloses that notches are formed at the positions that are substantially coincident with the line connecting the axes of the bolt holes and extending in a direction substantially perpendicular to the axis of the crank hole as claimed (Figures 1 and 3).

With respect to claim 26, Fetouh ('109) discloses one end of the notch is positioned at one end of the crank pin bore in the axial direction thereof as claimed (col. 3, lines 49-57 and Fig. 1).

### ***Conclusion***

3. This Office action is made non-final. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WZ

10/24/2007

  
ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNICAL